

# Soots Me

Preparation Time:

Easy-to-do

Moderate

Extensive

2.AIR.2

**Grade:** 2 – 3

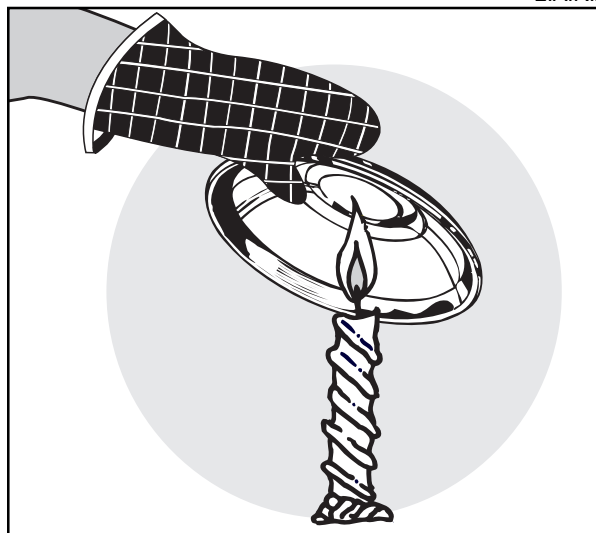
**Focus:** Open burning

**Subject:** Science, Social Studies

**Materials:** Two candles, holders and aluminum pie tins for each student or team of students, matches, kitchen mitt

**Teaching Time:** One class period

**Vocabulary:** Soot



## Learning Objective

Students will observe that when something is burned, tiny particles are released into the air.

**TEACHERS:** This lesson requires your students to observe the reactions of burning candles. This should be performed as a demonstration.

## Background

Open burning, that is burning of trash, leaves, limbs, etc. outdoors, is discouraged in all South Carolina communities. And in many cases it cannot be done without permission from local authorities. To obtain permission or to check local regulations, you may contact your local DHEC office or the S.C. Forestry Commission.

One reason for controlling open fires is to help reduce potentially harmful particles from being released into the air. These airborne particles can cause eye irritation and respiratory problems, especially in the young, elderly and those who already suffer from breathing problems.

## Learning Procedure

1. Place the two candles in their holders. Light only one of them. Set the other one aside.
2. Observe the two candles. **Ask:** Is there anything different about these two candles? Can you see anything above the flame of the burning candle? Have the students record their observations.
3. Using a kitchen hot mitt, hold one of the aluminum pie pans a couple of inches over the flame. Be careful not to touch the flame.
4. After about 15 or 20 seconds, remove the pan and set it aside. Blow out the candle.
5. Hold the other pie pan over the candle that is not lit for the same amount of time. Look at each pie pan and record what you see.



*The use of wood-burning stoves in the mostly rural state of Vermont increased greatly in the 1980s. This created increased levels of airborne particulates usually found in large urban areas.*

*Source: The Information Please Environmental Almanac, 1993*

### Questions for the Class

1. What produces soot?
2. Where would the soot have gone if you had not collected it with the pie pan?
3. Name three other sources of soot.

### Extension Activities

1. Interview parents and grandparents about burning leaves in the fall. Was this a common practice? Do they still do this?
2. Research fireplaces and wood-burning stoves. Do people still use these and do they contribute to air pollution?

Name: \_\_\_\_\_

## Student Worksheet

1. Above the flame of the lighted candle, I observed: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

2. Above the unlit candle, I observed: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

3. On the pie tin above the lighted candle, I observed: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

4. On the pie tin above the unlit candle, I observed: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



***Limit the use of fireplaces and wood-burning stoves at home if possible.***